



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
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Ser 1704/40K4
14 April 1997

From: Commander, Naval Facilities Engineering Command

Subj: CONSTRUCTION SAFETY AND HEALTH CERTIFICATION COURSE

Ref: (a) COMNAVFACENGCOM Itr Ser 1556/40K4 dtd 28 Dec 95

Encl: (1) Construction Safety and Health Certification Course, Level I
(2) FSC Construction/Alteration/Repair Safety and Health Requirements Course
(3) Construction Safety and Health Certification Course, Level I, Scoring Key
(4) FSC Construction/Alteration/Repair Safety and Health Requirements Course
Scoring Key

1. The 3 September 1996 edition of the US Army Corps of Engineers Safety and Health Requirements Manual, EM-385-I-1, was issued to field locations in January 1997. The Construction Safety and Health Correspondence Course issued in September 1994 and the FSC Safety and Health Requirements Exam issued in December 1995 have been revised to include the new requirements of the 1996 manual.

2. As required by reference (a) you have been appointed as the Construction Safety and Health Exam Program Administrator for your activity. As such you are responsible for administrating, tracking, and maintaining records for the Construction Safety and Health Certification Course and the FSC Construction/Alteration/Repair Safety and Health Requirements Course. Enclosures (1) and (2) provide procedures for administering the exams as well as copies of the revised exams. Level II, the closed book exams, will be forwarded under separate cover. Enclosures (3) and (4) provide the answer keys for both exams. Enclosures (3) and (4) must be protected and maintained by you and are NOT FOR RELEASE.

3. Please contact [REDACTED] if you have any questions, need additional assistance or would like a "Word 6.0" copy of enclosures (1) and (2).

[REDACTED]
By direction

Distribution:
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Subj: FACILITIES SUPPORT CONTRACT (FSC) CONSTRUCTION/ALTERATION/
REPAIR SAFETY AND HEALTH REQUIREMENTS COURSE

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NAVAL FACILITIES ENGINEERING COMMAND

CONSTRUCTION SAFETY AND HEALTH CERTIFICATION COURSE

LEVEL I

1. This Safety and Health Correspondence Course has been prepared for all military and civilian personnel, such as Resident Officer in Charge of Construction, Assistant Resident Officer in Charge of Construction, Construction Representative, Construction Management Technicians, Engineer, Engineering Technician, Field Contract Specialist, Design Manager, Project Manager, whose duties require visits to construction projects or require contract negotiations. It is designed to familiarized personnel with the use of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-I-I (3 September 1996).
2. All NAVFAC personnel meeting the above criteria who have not taken and successfully completed the NAVFAC Construction Safety Certification Course or who were certified prior to 1 April 1997 are required to be certified/recertified utilizing the attached examination.
3. Level I is an open book exam, which shall be completed within a six (6) month time frame from receipt of exam, and returned the responsible EFD/EFA's Safety Office for grading and recording within 45 days of receipt. Level II is a closed book exam to be administered by the EFD/EFA's Safety Office or an approved proctor at your activity. Level II will be forwarded after Level I has been successfully completed. A passing grade of 80 or above must be attained on both parts. A certification of completion will be issued when each level is completed.
4. If you have any questions, the EFD/EFA Point of Contact is

Corn _____ or DSN _____

EFD/EFA SAFETY MANAGER NAME

Enclosure (1)

CORRESPONDENCE CONSTRUCTION SAFETY EXAMINATION
 U.S. ARMY CORPS OF ENGINEERS'
 SAFETY AND HEALTH REQUIREMENTS MANUAL.
 EM-385-1-1
 NAVAL FACILITIES ENGINEERING COMMAND

LEVEL I - OPEN BOOK

SCORE: _____

NAME: _____ START DATE: _____

OFFICE: _____

Instructions: Circle the most appropriate answer.

1. On most Construction/Alteration/Repair projects, the Corps of Engineers Health & Safety Manual (COE-385-1-1), 79 CFR 1910.29 CFR 1926, and other safety and health documents are references. In these cases with multiple references requirements, including Local, State, and Federal references, the _____

- a. COE-385-1-1 will apply
- b. 79 CFR 1910 will apply
- c. 79 CFR 1926 will **apply**
- d. The most stringent will apply
- e. The reference for the agency that is administering the contract will apply

2. Before initiation of work at the job site, _____-written by the prime contractor for the specific work and hazards of the contract and implementing in detail the pertinent requirements of COE-385-1-1 will be reviewed and found acceptable by designated Government personnel.

- a. Job Specific Safety Program
- b. An Activity Hazard Analysis
- c. An Accident Prevention Plan
- d. AU of the above

3. The requirements for an Accident Prevention Plan can be found in the Corps of Engineers Safety and Health Manual (COE-385-1-1) in _____

- a. Section 0 1
- b. Appendix A
- c. Section 28.B.0 1
- d. AU the above

4. In addition to the requirements of an accident prevention plan, contractor quality control personnel - as part of their quality control responsibilities- shall conduct _____

- a. Preparatory, initial, follow-up inspections
- b. Daily Safety **Inspections**
- c. Activity Hazard Analysis
- d. Weekly **Safety** Meetings

5. Before **beginning** each activity involving a type of work presenting hazards not experienced in previous project operations, or **where** a new work crew or subcontractor is to perform the work, _____ shall be prepared by the contractors performing the work activity.

- a. **a Preparatory Inspection**
- b. on site training
- c. **an Activity Hazard Analysis**
- d. **Pework training**

6. Work will not **begin** until the _____ for the work activity has been accepted by the _____ **designated** authority and discussed with all engaged in the activity, including the contractor, subcontractor(s), and Government on-site representatives.

- a. **Preparatory Inspection: Contractors**
- b. Safety Concerns; **Contractors**
- c. Preparatory **Inspection: Governments**
- d. Hazard Analysis: **Governments**

7. Weekly safety meetings shall be documented including the date, attendance, subjects discussed, and names of individual(s) who conducted the meeting. Documentation shall be maintained and copies furnished to the _____ on request

- a. Site Superintendent
- b. Contractor employees
- c. **Designated** authority
- d. Project manager

8. Employers and immediate supervisors are responsible for reporting all injuries to the _____ **within** _____

- a. Designated authority; 24 hours
- b. Project Superintendent; 24 hours
- c. **Designated** authority; 72 hours
- d. Project superintendent; 48 hours

9. An Accident that results in _____ injury, _____ or more persons admitted to a hospital, or _____ in an amount specified by the designated **authority** shall be reported to the Government's designated authority _____

- a. lost time: one; equipment damage: within 24 hours
- b. **fatal**; three; **property** damage: immediately
- c. **any**; one; **property** damage: within 48 hours
- d. lost time; **three**; material damage; 24 hours

10. What OSHA **form** does the EM-3 85-1-1 require for recording of contract mishaps incidental to the work recorded and reported? (Note: In addition to this requirement NAVFAC requires the NAVFAC CSIR- 1 form be completed and **entered** into the FAIR data base system for all recordable and reportable contractor mishaps.)

- a. Form 91
- b. **Form 100**
- c. Form 200
- d. All of the Above

11. Emergency telephone numbers and reporting instructions for ambulance, physician. _____ and _____ and police shall be conspicuously posted at the work site.

- a. EMT: Fire department
- b. Security; EMT
- c. Fire: Security
- d. Hospital: Fire

12. When a medical facility or physician is not accessible within five minutes of an injury to a group of two or more employees for the treatment of injuries, at least two employees on each shift shall be qualified to administer _____

- a. EMT duties and first responder duties
- b. First aid and CPR
- c. CPR and EMT duties
- d. First responder and first aid

13. Trailers and other temporary structures used as _____, to house personnel or for _____ shall be anchored with rods and cables or by steel straps to ground anchors: the anchor system shall be designed to withstand winds and must meet applicable state or local standards for anchoring mobile trailer homes.

- a. office trailers: storage
- b. storage trailers: offices
- c. temporary structures: storage
- d. field offices: storage

14. Temporary project fencing (or a substitute acceptable to the government's designated authority and delineated in the accident prevention plan) shall be _____ on all projects located in areas used by _____ of the _____. Consideration will also be given to those areas proximate to family housing areas and or school facilities.

- a. used: personnel: contractor
- b. erected: personnel: contractor
- c. provided: members: public
- d. erected: members: public

15. For areas of minimal public exposure, fencing is not required but signs, _____ hazards, shall be posted.

- a. hard hat area
- b. construction zone
- c. warning of construction
- d. limited access-construction

16. As a minimum requirement, contractor employees shall wear clothing suitable for the weather and work conditions: the minimum for field work shall be _____ and _____ or other protective work shoes or boots.

- a. shirt: long trousers: canvas
- b. short sleeved shirt: long trousers: leather
- c. long sleeved shirt: pants: safety toe
- d. Tee-shirt: pants: safety toe

17. Persons exposed to vehicular or equipment **traffic**, including _____, **spotters**, or _____, shall wear **belts** or apparel marked with a **reflectORIZED** or high-visibility material.

- a. work crews: suppliers
- b. **operators**; work crews
- c. **signalpersons**; **inspectors**
- d. **Contractor** employees: Government employees

18. All persons working in or _____ hard hat areas shall be provided with and required to wear Class A or Class B _____.

- a. **near**; **hard hats**
- b. **around**; protective **hats**
- c. close to; protective hard hats
- d. visiting; **protective** headgear

19. Whenever respiratory protective equipment is required, employers shall designate a _____ to develop, implement, and manage the **written** _____ **Qualifications** of the _____ shall be submitted to the designated authority in the accident prevention plan or _____.

- a. Specific person: safety **program**; designated person: **activity hazard** analysis
- b. On site person: **respiratory** protection **program**; designated person: contract **safety** plan
- c. **Qualified** person: safety **program**; qualified person: **contract** safety plan
- d. Competent person: **respiratory** protection **program**; competent person: activity **hazard** analysis

20. When respirators are to be used, written _____ will be developed and **implemented**.

- a. **Respiratory** Protection Program
- b. Project Safety Plan
- c. **Standard Operating Procedures**
- d. a and c

21. When required to enter an IDLH atmosphere No employee shall enter unless accompanied by another adequately protected employee or wearing a _____ and _____ tended by a person in a safe **area**.

- a. **Safety belt**; **retrieval line**
- b. Safety line: safety harness
- c. Respirator mask: retrieval line
- d. Safety line: retrieval device

22. All _____ confined spaces shall be considered _____ to life or health until proven **otherwise** by **testing**.

- a. Classified located: hazardous
- b. Untested classified: dangerous
- c. Unknown classified: hazardous
- d. **Permit** required; **Immediately** dangerous

23. A personal fall arrest system requires the use of _____ as part of personal fall arrest systems.

- a. Body Belts
- b. Body **Harnesses**
- c. **Body belt with** Lifeline
- d. Safety belt

24. The use of a _____ is permitted in a _____ system.
- Body belt: positioning device
 - Body harness: fall arrest
 - Safety belt: fall protection
 - Body harness: fall protection
25. Lanyards and vertical lifelines shall have a minimum tensile strength of _____. Horizontal lifelines shall be designed, installed and used under the supervision of a _____, as part of a complete personal fall arrest system, which maintains a factor of safety of at least _____.
- 2495 kg, 5500 lbs.; competent person: two
 - 2450 kg, 5400 lbs.; qualified person: three
 - 2270 kg 5000 lbs.; qualified person: two
 - 3608 kg, 5750 lbs.; competent person: three
26. Self-retracting lifelines and lanyards that automatically limit free fall distance to _____ or less shall be capable of sustaining a minimum tensile load of _____.
- 3 meters (6 feet); 2270 kg (5000) pounds
 - 1 meter (3 feet); 2500 kg (5400) pounds
 - 5 meters (8 feet); 2270 kg (5000) pounds
 - 60 centimeters (2 feet); 1360 kg (3000) pounds
27. Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body belts and body harnesses shall be made from _____.
- Manila Fibers
 - Sisal Fibers
 - Synthetic Fibers
 - All of the above
28. U.S. Coast Guard Approved International Orange personal flotation device (PFD) shall be provided to and properly worn by all persons in the following circumstances: On floating pipelines, pontoons, rafts, or stages; On structures extending over or next to water except where guardrails or safety nets are provided for employees; working alone at night where there are drowning hazards, regardless of other safeguards provided; in skiffs, small boats, or launches, unless in an enclosed cabin or cockpit; or _____.
- along side pier and dock work
 - when working in/near coffer-dams
 - pile driving operations from a barge
 - wherever there is a drowning hazard
29. All Personal flotation devices (PFDs) shall be equipped with _____.
- Battery powered light
 - Whistle & light
 - Retroreflective tape
 - All of the above

30. AU ~~operations, materials,~~ and equipment shall be evaluated to determine the presence of _____ or if hazardous or toxic agents _____ be released into the work environment.

- a. **Dangerous operations:** could
- b. Hazardous chemicals: may be
- c. Hazardous environments; could
- d. None of the above

31. A hazard analysis shall be used for the evaluation to identify all substances, agents, and environments that present a hazard and recommend hazard control measures. _____ controls shall be used to control hazards; in cases where these controls are not feasible, _____ may be used.

- a. Chemical and mechanical; environmental controls
- b. Engineering and **administrative:** PPE
- c. Physical and environmental: PPE
- d. **Environmental** and engineering: mechanical controls

32. Individuals performing testing and monitoring shall be **trained** in testing and monitoring procedures and hazards; testing devices shall be **used, inspected,** and maintained in accordance with the manufacturer's instruction, a of which shall be _____ with the devices.

- a. **Certification:** submitted
- b. Copy; maintained
- c. Submittal; **forwarded**
- d. None of the above

33. When any hazardous substance is procured, used, stored or disposed, _____ for the substances shall be **available** at the **worksite**.

- a. Chemical Information
- b. Substance Control Procedures
- c. **Manufacturer's** Handling Procedures
- d. MSDS

34. Every hazardous substance being transported for disposal shall be transported with a copy of the substance's _____

- a. **Manufacturers** Handling Procedures
- b. Substance Control Procedures
- c. MSDS
- d. Chemical Information

35. **Before** initiation of work on an identified asbestos or lead hazard project, a **written** plan in compliance with OSHA and EPA shall be developed and implemented. This plan shall be submitted and accepted by the _____ designated authority before **initiation** of work activities. For contract activities, the compliance plan _____ be **incorporated** into the project's accident prevention plan.

- a. Certified **Industrial** Hygienists: must
- b. Qualified Persons; must
- c. Government's: must
- d. Government's: may

36. A fire extinguishers, rated not less than _____, shall be available at all locations where heating devices and melting kettles are in use. _____ shall be required on government installations unless otherwise indicated by the Government's Designated Representative.

- a. 2-A:20-B:C; Hot Work Permits
- b. A:20-B:C; Sketch Map Locations
- c. 2-20-B:C; Full Time Attendants
- d. 2-A:20-B:C; Full Time Attendants

37. Bituminous-material melting kettles shall not be used or operated inside, atop, or within _____ of buildings or combustible material.

- a. 6 meters. (18) feet
- b. 8 meters. (35) feet
- c. 10 meters. (30) feet
- d. 12 meters, (35) feet

38. Only qualified and trained employees may be assigned to install, adjust, and operate laser equipment; of qualification of the laser equipment operator shall be in the operator's possession during _____

- a. Certification: use
- b. Proof operation
- c. Certificate: construction
- d. Degree: operations

39. Airborne contaminants created by portable equipment (such as drills, saws, and grinding machines) in concentrations exceeding acceptable safe limits shall be _____ at the source.

- a. securely guarded
- b. effectively guarded
- c. effectively controlled
- d. securely controlled

J0. _____ shall be developed and implemented for abrasive blasting operations, including pressurized pot procedures (filling, pressurizing, depressurizing, and maintenance and inspection).

- a. Activity Hazard Analysts
- b. Safe Operating Procedures
- c. Written Operating Procedures
- d. Written Hazard Analysis

41. No employee will be allowed to work in abrasive blasting operations unless they have met the _____ and _____ and _____, and has been provided the personal protective equipment specified in Appendix . _____

- a. minimum standards: training: experience; C
- b. training certification: experience: operation qualifications: C
- c. medical surveillance: training: experience: C
- d. both a & b

42. All confined spaces are either _____ **or** _____
- Classified Hazardous; Non Hazardous Spaces
 - Clearly **Identified**; Classified Non Hazardous
 - Permit Required; Non Permit Required
 - Classified Identified; Non classified **Identified**
43. AU Permit-required confined spaces (PRCS) shall be identified with a sign reading _____ to inform personnel of the existence and location of and the danger posed by the PRCS.
- DANGER-NO ENTRY AUTHORIZED PERMIT REQUIRED CONFINED SPACE
 - CLASSIFIED CONFINED SPACE-DO NOT ENTER UNLESS AUTHORIZE
 - DANGER-PERMIT-REQUIRED CONFINED SPACE-DO NOT ENTER
 - AU of the above **are** acceptable
44. The major responsibilities of the **entrants** to a Permit Required Confined Space (PRCS) are to _____ with the attendant _____ and alert the attendant or entry supervisor whenever they **recognize** any warning sign or symptom of exposure to a dangerous situation.
- communicate: evacuate
 - stay** in visual distance: **communicate**
 - communicate**; **notify**
 - inform; **notify**
45. All employees with potential **entry** into a PRCS shall be _____ of the existence, location, and hazards of the space. All authorized entrants, attendants, and **entry** supervisors shall know the _____ that may **be** faced **during** entry, including information on the mode, **signs** or **symptoms**, behavioral effects, and consequences of exposure.
- informed**: symptoms
 - notified in writing; problems
 - notified: hazards
 - trained**: hazards
46. All employees shall be instructed not to enter PRCS without the proper _____, and without following the _____ and _____ outlined in the **permit**.
- Training: Instructions: **Procedures**
 - Safety Equipment: **Training**; Procedures
 - Procedures: Safety Procedures: **Information**
 - Permit; Procedures: Practices
47. Each member of the **rescue/emergency** team shall be provided with_ and **trained** in the proper use of _____ **necessary** for making rescues **from** PRCSs.
- CPR & First Aid **Training**
 - CPR & Rescue Training
 - PPE & Equipment
 - Equipment & **Training**

48. What **person**, on a PRCs “team“ actually authorizes the entry into the confined space?
- Person doing the monitoring
 - Persons who will actually enter the confined space
 - Supervisor
 - Any of the above once the permit is issued.
49. How **often** is it required for each member of the rescue/emergency team to practice making PRCs rescues?
- At least once **every** 12 months
 - At least once every 6 months
 - At least once every month
 - At least once **every** week
50. Each member of the **rescue/emergency** team shall receive what level of training?
- The same **training** as authorized entrants
 - The same **training** as the **supervisor**
 - The **same training** as the attendants, plus CPR & First Aid
 - All of the above.
51. Off site rescue and **emergency** services shall be informed of the _____ they may confronted with and be provided _____ to all of PRCs.
- locations: listing
 - hazards: access
 - both a & b**
 - site situations: location
52. What piece of equipment does an entrant use to facilitate non-entry rescues from a vertical PRCs?
- Chest or Full Body Harness
 - Safety Belt with retrieval line
 - Chest or Full Body Harness or wristlets
 - Any** of the above
53. A mechanical devise shall be ready to retrieve personnel from vertical PRCs more than _____ deep.
- 1.5 meters. (4) feet
 - 1.7 meters. (5) feet
 - 1.8 meters. (6) feet
 - None of the above
54. A confined spaces is a space that:
- is large enough and so configured that a person can **bodily** enter and perform assigned work
 - has limited or restricted means for entry or exit such that the entrant’s ability to escape in an emergency would be hindered
 - is not designed for continuous worker occupancy
 - all of the above

55. Any location (environment) with an atmosphere that poses a risk of death, incapacitation, injury, or illness due to flammable or explosive hazards, hazardous substances or agents, oxygen concentrations below 19.5% or above 22%, or any other atmospheric condition recognized as IDLH is defined as:

- a. Permit Required Confined Space
- b. Hazardous location
- c. Hazardous Environment
- d. Potential Permit Required Confined Space

56. As defined by COE 385-1-1, a confined space that does not contain, or with respect to atmospheric hazards does not have the potential to contain any hazard capable of causing death or serious physical harm is called:

- a. Non-Hazardous location
- b. Non-Hazardous Space
- c. Non-Permit Coniined Space
- d. Non-Hazardous environment

57. Using the definition of a confined space, a contractor has a contract to replace a pump in a concrete wet-well. It is only 4 feet deep. The pump works as a lift station for station sewage system. This wet-well has been by-passed with other piping and the wet-well is dry. There is a potential when the pump is removed for a small amount of sewage to flow into the wet well. Is this considered permit-required confined space? If so, is a mechanical vertical retrieval device required?

- a. Yes it is a PRCS. No mechanical device will be required.
- b. Yes, this is a non-permit required confined space, no mechanical retrieval device will be required.
- c. No this is not a confined space
- d. None of the above answers if correct

58. Piping systems shall be identified by field color and legend color. Materials under extreme pressure are to be identified with the field color and legend color of _____

- a. black and yellow
- b. yellow and black
- c. blue and white
- d. black and blue

59. Manual (hand) signals may be used when the distance between the operator and signal person is not more than _____

- a. 15 m (50 feet)
- b. 7.5 m (25 feet)
- c. 30 m (100 feet)
- d. 3 m (10 feet)

60. For fire protection and prevention, the designated authority shall survey all activities and determine which ones require a _____

- a. outage permit
- b. confine space permit
- c. hot work permit
- d. electrical permit

61. Smoking shall be prohibited in all areas where flammable, combustible, or oxidizing materials are stored. Signs will be posted and state which of the following?
- NO SMOKING
 - NO OPEN FLAMES
 - NO SMOKING OR OPEN FLAMES
 - SMOKING PROHIBITED
 - None of the above
62. Fire extinguishers shall be in _____ and operable condition and shall be suitably placed, distinctly marked, and readily accessible.
- a fully charged
 - an up-right position
 - clear view
 - all of the above
63. Either general mechanical or local exhaust ventilation shall be provided whenever welding, cutting, or heating is performed in a _____
- open structure
 - confined open ladder
 - confined space
 - none of the above
64. Compatible fire extinguishing equipment shall be provided in the immediate vicinity of _____ operations.
- burning or cutting
 - welding or burning
 - welding or cutting
 - burning or welding
65. Patched, oil-soaked, worn, or _____ cords or cables shall not be used.
- tape marked
 - short
 - frayed electrical
 - none of the above
66. Extension cords or cables shall not be secured with staples, hung from nails, or suspended by _____
- rope
 - plastic tie straps
 - bare wire
 - tape
67. Ground-fault circuit-interrupter are required in all circuits used for portable electric tools, including _____
- block, brick saws
 - concrete vibrators
 - air compressors
 - aandc

68. Electric tool circuits that are _____ directly to an electrical source of power shall be GFCI protected by a GFCI-type breaker.

- a. plugged
- b. hard wired
- c. on and extension cord
- d. on a hard duty cord

69. Temporary electrical distribution systems and devices shall be checked and found acceptable for polarity, _____ prior to initial use and prior to use **after** modification.

- a. Ground continuity
- b. Clearances to ground
- c. Ground resistance
- d. a and c
- e. a and b

70. Crane operations adjacent to overhead 50 kv lines are prohibited unless:

- a. Power has been shut **off** and positive means taken to prevent the lines from being energized.
- b. A 1.2 m (4 ft) clearance is maintained.
- c. A 3 m (10 ft) **clearance** is maintained.
- d. Either a or b
- e. Either a or c

71. **Before** climbing poles, ladders, scaffolds or other elevated **structures**:

- a. An inspection shall determine that the **structures** are capable of sustaining the additional or unbalanced **stresses** to which they will be subjected.
- b. The pole shall be made safe by guying, bracing, or other means.
- c. Action shall be **taken** as **necessary** to prevent failure of poles prior to removing or installing wire or cable.
- d. AU of the above
- e. **Both a and b**

72. AU conductors, subconductors, and overhead ground conductor shall be _____ to any isolated tower where it may be necessary to complete work on the transmission line.

- a. tied
- b. bonded
- c. labeled
- d. none of the above

73. **Only** tools and equipment **designed**, tested and intended for live-line bare-hand work shall be used and such tools and equipment shall be kept _____

- a. clean and **dry**
- b. tested and **calibrated**
- c. oiled and **adjusted**
- d. none of the above

74. On underground electrical installations, maintenance holes and unvented vaults shall be treated as, and subjected to the requirements of _____
- confined space
 - unattended substation
 - energized substation
 - a and b
75. Hazardous energy _____ shall be developed in a hazardous energy control plan.
- control procedures
 - approved procedures
 - approved plans
 - submittal procedures
76. Lockout or tagout devices shall be capable of withstanding the _____ to which they are exposed for the maximum period of time the exposure is expected, and indicate the _____ of the employee applying the device.
- weight; sex
 - environment; identity
 - environment position
 - none of the above
77. Remotely controlled systems must be _____ so that they cannot be operated by any source. The authorized employee shall affix lockout and/or tagout devices to each energy isolating device in accordance with the _____ procedure.
- removed: safety plan
 - completely isolated: hazardous energy control
 - tagged: contract plans
 - turned to the off position: safety Plan
78. Before lockout or tagout devices are removed and energy restored to the system, the _____ shall ensure that the work area has been inspected, all non-essential items have been removed, the system is operationally intact, all employees have been safely positioned, and all affected employees have been notified that the lockout and tagout devices are about to be removed.
- superintendent
 - building owner
 - authorized employee
 - ROICC inspector
79. A person whose position requires him to operate or use a system which is under lockout or tagout or whose position requires him to work in an area where a system which is under lockout to tagout is being serviced to maintained is called _____.
- Authorized employee
 - Affected employee
 - Superintendent
 - Qualified employee

80. _____ clothing _____ hair, dangling jewelry (including dangling rings, chains, and wrist watches) shall not be worn while working with any power tool.

- a. Dress type: loose long
- b. short pants and shirt type: short
- c. loose and frayed; loose long
- d. tight fitting; long loose

81. AU portable, power-driven circular saws shall:

- a. Be equipped with guards above and below the baseplate or shoe.
- b. Be double insulated.
- c. Have the operating speed etched or permanently marked in a prominent place.
- d. Be equipped with anti-kickback devices
- e. Be equipped with sawdust collector

82. Radial arm power saws shall be equipped with an _____

- a. automatic brake
- b. automatic vacuum
- c. laser guided line
- d. depth gage

83. A _____ is one who has been trained by an authorized instructor (one who has been trained authorized, and provided an authorized instructor's card by the tool manufacturer or by an authorized representative of the tool manufacturer)

- a. qualified operator
- b. authorized user
- c. qualified instructor
- d. none of the above

84. Explosive actuated tools shall not be driven into

- a. soft or easily penetrable materials unless they are backed by a material that will prevent the fastener from passing through the other side.
- b. concrete, unless the material thickness is at least three times the penetration of the fastened shank.
- c. cast iron.
- d. all of the above
- e. both a and b

85. A chain saw must never be used to cut above the operators' _____

- a. head height
- b. waist height
- c. shoulder height
- d. none of the above

86. Where the movement of materials may be hazardous to persons, _____ or other devices shall be used to control the loads being handled by hoisting equipment; these devices shall be _____ when used near energized lines.

- a. taglines; nonconductive
- b. banding; sheathed
- c. containerized, grounded
- d. none of the above

87. Material stored inside building under construction shall not be placed within _____ of any hoistway or floor opening, nor within _____ of an exterior wall which does not extend above the material stored

- a. 1.2 m (4 ft); 2.1 m (7 ft)
- b. 3.1 m (7 ft); 3 m (10 ft)
- c. 1.8 m (6 ft); 3 m (10 ft)
- d. 1.8 m (6 ft); 2.1 m (7 ft)

88. Lumber to be handled manually shall not be stacked more than _____ high. Brick stacks shall not be more than _____ high and stacked loose brick shall be tapered back 5 cm (2 in.) every 0.3 m (1 ft.) above the _____ level.

- a. 6 m (20 ft); 1.8 m (6 ft); 1.2 m (4 ft)
- b. 1.8 m (6 ft); 1.8 m (6 ft); 1.5 m (5 ft)
- c. 4.8 m (16 ft); 2.1 m (7 ft); 1.2 m (4 ft)
- d. 6 m (20 ft); 1.8 m (6 ft); 3.1 m (10 ft)

89. Work areas shall be inspected _____ for adequate housekeeping and sufficient personnel/equipment provided to insure compliance. No work will be allowed in any areas that are not in compliance with good housekeeping.

- a. weekly
- b. daily
- c. twice weekly
- d. monthly

90. All stairways, passageways, gangways, and accessways shall be kept free of _____ at all times.

- a. materials
- b. supplies
- c. obstructions
- d. all the above

91. Waste material and rubbish shall not be thrown from a height of more than _____ unless dropped through an enclosed chute.

- a. 1 m (42 in)
- b. 1.5 m (5 ft)
- c. 1.8 m (6 ft)
- d. 2 m (6 ft 6 in)

91. When hoisting loads, _____ shall be used to secure the load and rigging

- a. a positive latching device
- b. only alloyed chain
- c. hooks, shackles, and rings
- d. none of the above

93. Except for eye splices in the ends of wires and for endless wire rope slings, wire rope used in hoisting, lowering, or pulling loads, shall consist of _____

- a. one continuous piece
- b. without knot or splices
- c. both a and b
- d. none of the above

94. The employer shall have each synthetic web sling marked or coded to show _____
- name or **trademark** of the **manufacturer**
 - rated** capacity for the type of hitch
 - type of material
 - all of the above
95. The use of _____ for entertainment purposes while **operating** equipment is prohibited.
- radios**
 - tape players**
 - headphones
 - all of the above
96. Equipment powered by an **internal** combustion engine will not be operated _____ unless adequate ventilation is provided.
- in enclosed areas
 - near flammable material
 - both a and b
 - none of the above
97. Drivers and **crewmembers** may remain in the cab during loading operations when equipped with a _____
- cab protector
 - hard hat
 - both a and b
 - none of the above
98. All equipment left unattended at night adjacent to a highway in normal use or adjacent to construction areas where work is in progress. shall have _____ or _____ or _____ equipped with **lights** or **reflectors**. to identify, the location of the equipment
- fencing; tape; barricades
 - lights; reflectors; barricades
 - fencing; rope; barricades
 - lights; fencing; barricades
99. No modifications or additions which affect the capacity or safe operation of machinery or equipment shall be made _____
- without a licensed **engineers** approval
 - without the **manufacturers** written approval
 - without the **Contracting** Officers written approval
 - both b and c**
100. Each bulldozer, scraper, dragline, crane, motor **grader**, front-end loader, mechanical shovel, backhoe, and other similar equipment shall be equipped with at least one _____ with a minimum rating of _____ -B:C.
- dry chemical fire extinguisher. 5
 - carbon** dioxide fire extinguisher. 5
 - halon**; 5
 - either a and b

101. Except for equipment designed and operated so that the operator is always facing the direction of motion, all self-propelled construction and industrial equipment whether moving alone or in combination, shall be equipped with a _____

- a. ROPS
- b. headlights
- c. turn signals
- d. reverse signal alarm

102. Which of the following documents must every crane have with them at all times they are to be operated?

- a. a copy of manufacturer's operating manual and operating aids with which the crane is equipped.
- b. the load rating chart
- c. crane log book
- d. all of the above

103. A _____ shall be developed and implemented for crane set-up and set-down procedures.

- a. standard operating procedure
- b. hazard analysis
- c. safety plan
- d. all of the above

104. All lattice boom and hydraulic mobile cranes (except articulating boom cranes) shall be equipped with a _____

- a. boom angle indicator
- b. load indicating device or load movement indicator
- c. drum rotation indicators
- d. all of the above

105. All lattice boom cranes shall be equipped with an anti-rvo block device to stop the load hoisting function except for _____³

- a. cranes used exclusively for lifting loads under 9000 kg (10 tons)
- b. cranes used exclusively for lifting loads under 4500 kg (5 tons)
- c. cranes used exclusively for duty cycle operations
- d. cranes used exclusively for personnel lifting operations

106. All mobile cranes with cable supported booms shall be equipped with

- a. boom stops
- b. jibs with positive stops
- c. boom hoist disengaging device
- d. all of the above
- e. a and c

107. _____ shall be worn by all personnel on floating plant decks exposed to severe weather, regardless of other safety devices utilized.

- a. USCG approved foul weather gear
- b. ANSI approved goggles
- c. USCG approved PFD
- d. both a and c

108. All **pressurized** equipment and systems shall be provided with _____
- a **pressure gauge**.
 - a safety relief valve.
 - inspection** and testing records with certificate.
 - All the above
109. Which of the following are correct for Compressed gas cylinders storage?
- Stored in well-ventilated locations
 - Secured in an upright position.
 - Segregated** by **gas group** with empty cylinders stored in the same manner.
 - Separated from** flammable, combustible or **ignitable** materials.
 - all the above
110. Compressed **gas** cylinders in service shall be secured by use of _____
- Substantial fixed or portable tacks
 - Substantial hand **trucks**.
 - Attached with ropes or ties to a permanent and substantial structural member.
 - both a and b
111. Personal fall protection devices or the equivalent includes _____
- a standard **guardrail**, catch platform, **temporary** floor, safety net or the equivalent.
 - a full body harness and lanyard.
 - both a and b
 - neither a or b
112. Personal **fall** protection devices or the equivalent shall be provided for all employees _____
- on accessways (excluding ladders) or work platforms from which **they may** fall 1.8 m (6 ft) or more: on runways for **falls** 12 m (4 ft) or more: and over water, machinery, or dangerous operations.
 - only for work on roofs, structural steel members or towers.
 - only when **required** by the activity hazard analysis.
 - as required by the competent **person**.
113. An acceptable **guardrail** system consists of a **toprail**, **midrail** and **toeboard** with posts on 8 ft centers having a vertical height of 105 cm +/- 7.5 cm (42 in +/- 3 in) from the upper surface of the **toprail** to the floor and capable of resisting 200 **lbs** applied in any **direction** to the top edge. Which of the following are acceptable materials _____
- wooden** rails consisting of a 2x4 **toprail**, a 1 x 6 **midrail**, a 1 x 4 **toeboard** with 2x4 posts.
 - pipe **rails** consisting of a 1.5 inch diameter **toprail**, **midrail**, a 1x4 **toeboard** with 1.5 inch diameter posts.
 - structural** steel rails consisting of a 2x2x3/8 angle **toprail**, **midrail**, a 1 x 4 **toeboard** with a 2x2x3/8 angle posts.
 - all the above
 - both a and b

114. A standard guardrail system shall be _____
- at all open sides/end locations where persons are required or permitted to pass or work under the elevated platform or where needed to prevent persons from falling from the elevated platform.
 - at all stairs where persons may fall.
 - on all scaffolds and workplatforms.
 - only as required by the contractors' competent person.
115. Personal fall protection equipment shall be inspected before use each day to determine that it is in safe working condition: defective equipment shall be immediately _____
- tagged for further testing.
 - used for positioning and not as primary fall protection equipment.
 - replaced.
 - brought to the competent persons attention for evaluation
116. Which of the following is true about lifelines?
- Multiple employees can be attached to the same vertical lifeline if acceptable to the contractor's competent person.
 - Only one employee can be attached to a vertical Lifeline.
 - Lifelines can be designed to the actual working loads.
 - Horizontal lifelines never require locking devices.
 - none of the above
117. The maximum length of portable step ladders shall not exceed _____
- 2.4 m (8 A)
 - 3.6 m (12 ft)
 - 5.5 m (18 ft)
 - 6 m (20 ft)
118. A fixed ladder shall have a minimum of _____ clear length of rungs or clears.
- 25.4 cm (10 in)
 - 30.5 cm (12 in)
 - 40.6 cm (16 in)
 - 45.7 cm (18 in)
119. On all structures 6 m (20 ft) or more in height. - _____ - shall be provided during construction.
- portable ladders
 - fixed ladders
 - stairways
 - elevators
120. The use of a crane or derrick to hoist personnel on a platform is _____
- regularly used.
 - an effective means of moving personnel to upper floors.
 - prohibited except for specifically identified circumstances
 - commonly used during construction of airfield hangers.

121. Scaffolds and their components shall be capable of supporting without failure at least _____ times the maximum anticipated load.

- a. 2
- b. 3
- c. 4
- d. 5

122. Scaffold planks shall extend over their end support not less than _____ (unless the planking is manufactured with restraining hooks or equivalent means or secured from movement) nor more than _____. All platform planking shall be overlapped a minimum of _____ or secured from movement

- a. 20 cm (8 in); 30 cm (12 in); 30 cm (12 in)
- b. 15 cm (6 in); 30 cm (12 in); 30 cm (12 in)
- c. 10 cm (4 in); 20 cm (8 in); 20 cm (8 in)
- d. None of the above

123. All pole scaffolds shall be securely guyed or tied to the structure. Where the height or length exceeds _____ the scaffold shall be secured at intervals not greater than _____ vertically and horizontally.

- a. 6 m (20 ft); 6 m (20 ft)
- b. 7.5 m (25 ft); 7.5 m (25 ft)
- c. 9 m (30 ft); 9 m (30 ft)
- d. None of the above.

124. On a suspension scaffold designed for a working load of 225 kg (500 pounds), no more than _____ employees shall be permitted to work at one time.

- a. one
- b. two
- c. three
- d. four

125. Prior to initiating demolition activities the following survey plan shall be accomplished:

- a. Engineering Survey
- b. Asbestos Survey
- c. Demolition Plan
- d. All of the above

126. All material chutes, or sections thereof, at an angle of more than _____ from the horizontal shall be enclosed. openings equipped with closures at or about floor level for the above grade, may be removed to provide storage area for insertion of materials.

- a. 30 degrees
- b. 45 degrees
- c. 60 degrees
- d. None of the above

127. Coverings for floor and roof openings shall be of sufficient _____ to support any load which may be imposed and shall be _____ in place to prevent accidental removal or displacement

- a. **thickness; secured**
- b. strength; secured
- c. **quality; made**
- d. None of the above

128. Conduits, trenches, and manhole covers and their supports when exposed to vehicles or equipment shall be designed to carry a truck rear axle load of _____ times the maximum anticipated load.

- a. one
- b. **two**
- c. **three**
- d. four

129. Wall opening protection barriers shall be capable of withstanding a load of at least _____ applied in any direction (except upward) with a minimum of deflection at any point on the top rail or corresponding member, or screens of such construction and mounting that they are capable of withstanding a load of at least _____ applied horizontally at any point on the near side of the screen.

- a. 45 kg (100 lbs); 90 kg (200 lbs)
- b. 68 kg (150 lbs); 113 kg (250 lbs)
- c. 90 kg (200 lbs); 90 kg (200 lbs)
- d. **113 kg (250 lbs); 113 kg (250 lbs)**

130. Every hatchway and chute floor opening shall be **guarded** by a _____ cover. The opening shall be barricaded with _____ so as to leave only one exposed side; the exposed side shall be provided either with a swinging gate or so offset that a person cannot walk into the opening.

- a. **steel; railings**
- b. plywood; **railings**
- c. **hinged; railings;**
- d. None of the above.

131. Whenever workers are in or around excavations, a competent person shall inspect the excavation, adjacent areas, and protective systems daily, as needed during shifts. _____

- a. as noted in the **contractors`** Activity Hazard Analysis.
- b. after every rainstorm or other hazard-increasing occurrence
- c. at the end of **the shift.**
- d. None of the above.

132. Where **oxygen** deficiency or gaseous conditions are known or suspected air in the excavation shall be _____ prior to the start of each **shift** or more often if directed by the designated authority.

- a. mechanically vented
- b. tested
- c. physically removed
- d. None of the above

133. If water is accumulating in the bottom of a **trench**, the worker should _____
- go into the trench to evaluate the depth of the water and the condition of the trench sides.
 - not enter unless the water **hazards** are controlled by measures planned and directed by a **registered** engineer.
 - review the Activity Hazard Analysis and obtain the proper gear to work in the wet conditions.
 - None of the above.
134. Excavated material shall be placed at least _____ from the edge of an excavation or shall be retained by devices which are sufficient to prevent the materials from falling into the excavation. In any case, material shall be placed at a distance to prevent excessive loading on the face of the excavation.
- 0.6 m (2 ft)
 - 0.9 m (3 ft)
 - 1.2 m (4 ft)
 - 1.5 m (5 ft)
135. Protection shall be provided to prevent personnel, vehicles, and equipment from falling into excavations. What class of perimeter protection is required for excavations exposed to members of the public or vehicles, or equipment?
- Class I
 - Class II**
 - Class III
 - None of the above
136. Where personnel are **required** to enter excavations over _____ in depth, sufficient stairs, ramps, or ladders shall be provided to require no more than _____ of lateral travel.
- 1.2 m (4 ft); 7.5 m (25 ft)
 - 1.7 m (5 ft); 6 m (20 ft)
 - 1.8 m (6 ft); 7.5 m (35 ft)
 - 2.4 m (8 ft); 9 m (30 ft)
137. All underground work must be evaluated to see if _____
- it is a confined space.
 - access is controlled to prevent unauthorized **entry** and a check-in-check-out system is in place.
 - appropriate emergency rescue plans, equipment and personnel are available.
 - an effective communication system is provided.
 - all the above
138. At least one _____ shall be on duty above ground whenever personnel are located in any form of **underground** construction to keep an accurate count of employees under ground and secure immediate first aid
- foreman with no **other** duties
 - skilled laborer with no other duties
 - designated** person with no other duties
 - Quality Control representative with no other duties

139. During steel erection, fall protection must be provided whenever employees are exposed to falls of _____ or more.
- 1.8 m (6 ft)
 - 2.4 m (8 ft)
 - 3.6 m (12 ft)
 - 5.5 m (18 ft)
 - 6 m (20 ft)
140. Employees engaged in the construction, maintenance, or repair of built-up roofing (but not construction of the roof deck) on roofs having a slope _____ and edges 1.8 m (6 ft) or more above lower levels, shall be protected from falling by one of the following: guardrail systems; safety net systems; personnel fall arrest systems; or warning line system combined with guardrail, safety net, personnel fall arrest, or safety monitoring system.
- greater than or equal to four vertical to twelve horizontal
 - less than or equal to four vertical to twelve horizontal
 - greater than or equal to six vertical to twelve horizontal
 - less than or equal to six vertical to twelve horizontal
141. On all roofs greater than _____ in height a hoisting device, stairways, or progressive platforms shall be furnished for supplying materials and equipment
- 3.7 m (12 ft)
 - 4.8 m (16 ft)
 - 5.5 m (18 ft)
 - 6 m (30 ft)
142. Pre-entry briefings shall be held for employees _____ to ensure that employees are knowledgeable of the site-specific safety and health plan (SSHP) and activity's hazard analysis and that the plan and analysis are being followed
- on the first day of the job prior to doing any production activity
 - at the supervisor's discretion or after an accident
 - prior to their initiating any new or differing site activity and at such other times as necessary
 - not required
143. When employees are engaged in Hazardous, Toxic, and Radioactive Waste (HTRW) activities the prime contractor shall:
- Integrate all subcontractor work activities into the Site-specific safety and health plan (SSHP) and make the SSHP available to all contractor and subcontractor employees
 - Ensure all subcontractors integrate provisions of the SSHP in their work activities
 - Integrate only the prime contractor work activities into the Site-specific safety and health plan (SSHP)
 - Make the SSHP available to only prime contractor employees
 - a and b
 - c and d
144. Prior to conducting on-site HTRW activities, all contractor personnel shall successfully complete:
- a 24-hour HTRW Safety and health training course
 - a 24-hour HTRW Safety and health training course to be followed by an 8-hour annual refresher course
 - a 40-hour EPA Hazardous Waste course followed by an 8-hour annual refresher course
 - a 40-hour HTRW Safety and health training course to be followed by an 8-hour annual refresher course

145. The level of protection provided by personal protective equipment shall be **increased** when additional information on site conditions indicates that increased protection is necessary to _____

- a. increase exposure above published exposure levels
- b. reduce exposure below permissible exposure limits
- c. reduce exposure below published exposure levels
- d. bandcabove

146. The removal or disposal of UST (Underground Storage Tank) systems which contained petroleum or other hazardous substance **shall** be in accordance with the **procedures** of _____, Removal and Disposal of Used **Underground** Petroleum **storage** tanks. A copy of it will **be** used in developing the hazard analyses for UST system **removal/disposal** activities and shall be available at the job site.

- a. ACGIH Recommended **Practices** for USTs
- b. UST Recommended **Practice** 10 12
- c. API Recommended Practice 1604
- d. API Recommended Practice 40 1

147. Hazard analyses for the *removal* or disposal of an **underground** storage tank (UST) shall address:

- a. hazards of UST system contents and procedures for hazard control
- b. monitoring requirements and procedures
- c. UST system **draining, purging,** and cleaning procedures
- d. spill contingency planning
- e. all of the above

148. Petmission in writing shall be **obtained** fi-om the Government's designated author@ before explosive materials are -

- a. replenished
- b. brought on the job site
- c. aandb
- d. none of the above

149. For _____, a dive log containing full name. date. location of dive. maximum depth, bottom time. surface interval between dives. breathing medium and type of equipment used, **group** classification at beginning and end of each interval. water and ambient air **temperature.** depth(s) and duration(s) of any decompression stops, and date and time of last previous dive shall be recorded and maintained _____

- a. each dive: at the dive location
- b. each diver. with the diver
- c. each diver and dive: at the dive location
- d. each diver and dive; with the diver

150. A contract requires that several cluster piles be cut off at the mud line, 55' below mean low water. The **contractor** elects to use SCUBA divers to access the **work.** The minimum dive team will be composed of _____

- a. One Diving Supervisor, one divers. one standby diver
- b. One Diving Supervisor. two divers (in visual contact). one standby diver
- c. One Diving Supervisor, two **divers** (in visual contact), one standby diver. two tender
- d. One Diving Supervisor, one divers. one standby diver. two tender

FACILITIES SUPPORT CONTRACT (FSC)
CONSTRUCTION/ALTERATION/REPAIR SAFETY AND HEALTH
REQUIREMENTS COURSE

Procedures

This exam is targeted for FSC personnel (ex. OICs, AOICs, FSCMs, and QAEs) who go into the field, unescorted, to inspect or view the contractors work. The students will learn requirements as outlined in U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, and be able to recognize safety and health hazards on their contract jobs.

The program will be administered and tracked by an appointed person at the EFD, EFA, PWC or CBC. This program administrator, normally located in the activity safety office, will be responsible for administrating, tracking, and maintaining records for the FSC exam.

All targeted personnel who have not taken and successfully completed the FSC Construction/Alteration/Repair Safety and Health Requirements exam or who were certified prior to 1 April 1997 are required to be certified/recertified utilizing the attached examination. Targeted personnel will be provided with a copy of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-I -1, for their use during the testing period, and the attached 100 question exam.

Students will be given a maximum of six months to complete the 100 question open book exam. A passing grade of 80 must be obtained to receive a certificate of accomplishment. Sample certificate is attached.

Retesting of personnel will be required on future rewrites of the EM 385-I-I and at the discretion of the program administrator

Enclosure (2)

**FSC Construction/Alteration/Repair
Safety and Health Requirements Course**

Open Book Exam

Score: _____

NAME: _____ START DATE _____

OFFICE: _____

Instructions: Circle the most appropriate answer. (Optional: Indicate the location of the reference on the reference line.)

1. On most Construction/Alteration/Repair projects, the Corps or Engineers Health & Safety Manual (COE-385-I-I) 29 CFR 1910.29 CFR 1926, and other safety and health documents are references. In these cases with multiple references requirements, including Local, State, and Federal references. the _____ applies.

- a. COE-3851-I will apply
- b. 29 CFR 1910 will apply
- c. 29 CFR 1926 will apply
- d. The most stringent will apply
- e. The reference for the agency that is administering the contract will apply

Reference: _____

2. Each individual employee is responsible for:

- a. Complying with applicable safety requirements
- b. Wearing the prescribed safety equipment
- c. Preventing avoidable accidents
- d. All of the above
- e. Both a and b

Reference: _____

3. In addition to the requirements of an accident prevention plan, contractor **quality control** personnel - **as** part of their quality control responsibilities - shall conduct _____

- a. Preparatory, initial, follow-up inspections
- b. Daily Safety Inspections
- c. Activity Hazard Analysis
- d. Weekly Safety Meetings

Reference: _____

4. Before beginning each activity involving a type of work presenting hazards not experienced in previous project operations, or where a new work crew or subcontractor is to perform the work, _____ shall be prepared by the contractors performing the work activii.

- a. Preparatory Inspection
- b. on site training
- c. an Activity Hazard Analysis
- d. Pework training

Reference: _____

5. Work will not begin until the _____ for the work activity has been accepted by the _____ designated authority and discussed with all engaged in the activity, including the contractor, subcontractor(s): and Government on-site representatives.

- a. Preparatory Inspection; Contractors
- b. Safety Concerns; Contractors
- c. Preparatory Inspection; Governments
- d. Hazard Analysis; Governments

Reference: _____

6. The employee indoctrination based on the safety and health program shall include which of the following:

- a. Employee and supervisor responsibilities for reporting all accidents.
- b. Job hazards and the means to control/eliminate those hazards.
- c. Requirements and responsibilities for accident prevention and maintaining safe and healthful work environments.
- d. Procedures for reporting and correcting unsafe conditions or practices.
- e. All the above.

Reference: _____

7. Employers and immediate supervisors are responsible for reporting all injuries to the _____ within _____

- a. Designated Authority; 24 hours
- b. Project Superintendent; 24 hours
- c. Designated Authority; 72 hours
- d. Project Superintendent; 48 hours

Reference: _____

8. An accident is investigated in depth to:

- a. Identify all causes
- b. Recommend hazard control measures
- c. Determine who was at fault
- d. All of the above
- e. Both a and b

Reference: _____

9. Accident record keeping requirements call for:

- a. a weekly record of all investigations
- b. a weekly record of all exposures
- c. a weekly record of all lost-time injuries
- d. a daily record of all injuries
- e. a daily record of all first aid treatments not otherwise reportable

Reference: _____

10. Emergency telephone numbers and reporting instructions shall be posted at the work site for which of the following?

- a. Ambulance
- b. Physician
- c. Hospital
- d. Fire
- e. All of the above

Reference: _____

11. At least two employees on each shift, shall be qualified to administer first aid and CPR when, in terms of time and distance, a medical facility or physician is not accessible within 5 minutes to a group of employees of:

- a. 2 or more
- b. 5 or more
- c. 10 or more
- d. 20 or more
- e. 50 or more

Reference: _____

12. The contents of first aid kits shall be checked by the employer to assure that expended items are replaced prior to utilization and at least:

- a. each shift when work is in progress
- b. each day when work is in progress
- c. each week when work is in progress
- d. every two weeks when work is in progress
- e. each month when work is in progress

Reference: _____

13. Temporary project fencing (or a substitute acceptable to the government's designated authority and delineated in the accident prevention plan) shall be _____ on all projects located in areas used by _____ of the _____. Consideration will also be given to those areas proximate to family housing areas and/or school facilities.

- a. used; personnel; contractor
- b. erected; personnel; contractor
- c. provided; members; public
- d. erected; members; public

Reference: _____

14. Employees shall wear clothing suitable for the weather and work conditions: the minimum for field work shall be short sleeve shirt, long trousers. and _____

- a. hard hat
- b. goggles
- c. leather or other protective work shoes or boots
- d. face shield
- e. all the above

Reference: _____

15. Department of Defense personnel shall be provided protection against the effects of hazardous noise exposure whenever sound-pressure levels exceed _____ dB(A) steady state **as a** TWA or _____ dB(A) impulse.

- a. 70; 80
- b. 85; 110
- c. 60; 80
- d. 70; 160
- e. 85; 140

Reference: _____

16. When the sound pressure level in a working area exceeds 115 dBA, steady state, the following is required:

- a. Earplugs
- b. Earmuffs
- c. Both earplugs and earmuffs or their equivalent
- d. Caution signs
- e. Both c and d

Reference: _____

17. Protective headgear shall be worn in which of the following areas?

- a. Construction
- b. Dredging
- c. Demolition/maintenance
- d. All of the above
- e. Both a and c

Reference: _____

18. Respirators shall not be substituted for engineering or environmental control methods without approval of the

- a. Supervisor
- b. Contractor
- c. Respiratory manager
- d. Designated Authority
- e. None of the above

Reference: _____

19. A respirator equipped with a facepiece _____ be worn if facial hair comes between the sealing surface of the facepiece and the face, or if facial hair interferes with valve function.

- a. can
- b. will
- c. shall not
- d. may not
- e. All the above

Reference: _____

20. In which of the following circumstance(s) can a air purifying respirator be used?

- a. The oxygen content of air is at least 19.5%
- b. There is periodic air monitoring of the work area
- c. ~~The~~ respirator assembly is approved for protection against the specific contaminants
- d. The type and model of respirator to be used has been successfully fit tested on the wearer
- e. All the above

Reference: _____

21. All _____ confined spaces shall be considered _____ to life or health until proven otherwise by testing.

- a. Classified located; hazardous
- b. Untested classified; dangerous
- c. Unknown classified; hazardous
- d. Permit required; Immediately dangerous

Reference: _____

22. Body belt/harness systems shall decelerate and bring the employee to a complete stop within _____, excluding lifeline elongation, after free fall distance.

- a. 1 meter (42 inches)
- b. 3 meters (9.8 feet)
- c. 5 meters (16.4 feet)
- d. 7 meters (23 feet)

Reference: _____

23. Lanyards and vertical lifelines shall have a minimum tensile strength of:

- a. 2000 kg (4,400 lbs)
- b. 2110 kg (4,650 lbs)
- c. 2180 kg (4,800 lbs)
- d. 2,270 kg (5,000 lbs)
- e. 2450 kg (5,400 lbs)

Reference: _____

24. When any hazardous substance is procured, used, stored, or disposed, _____ for the substances shall be available at the worksite.

- a. Chemical Information
- b. Substance Control Procedures
- c. Manufacturer's Handling Procedures
- d. MSDS

Reference: _____

25. Containers which have been used for hazardous substances may be used for other materials:

- a. After 6 months
- b. After 12 months
- c. After 18 months
- d. If the substances are compatible
- e. None of the above

Reference: _____

26. Heating devices or melting kettles shall:

- a. Be placed on a level, firm foundation
- b. Bituminous-material melting kettles shall be provided with an effective lid or hood
- c. Not be left unattended
- d. Have an approved fire extinguisher available at the location of use
- e. All of the above

Reference: _____

27. Bituminous-material melting kettles shall not be used or operated inside, atop, or within _____ of buildings or combustible material.

- a. 6 meters, (18 feet)
- b. 8 meters, (25 feet)
- c. 10 meters, (30 feet)
- d. 12 meters, (35 feet)

Reference: _____

28. Which statement(s) is not correct when handling hot substances?

- a. Passageways, clear of obstructions, shall be provided for all persons carrying hot substances.
- b. Hot substances can be carried up and down ladders.
- c. Hoist used for raising or lower hot substances, shall be given special attention to ensure that the hoist mechanism is adequate.
- d. a and b
- e. None of the above

Reference: _____

29. Containers for handling and transportation of hot substances shall be:

- a. labeled as to content
- b. free from any soldered joints or attachments
- c. not filled higher than 10 cm (4 in) from the top
- d. b and c
- e. None of the above

Reference: _____

30. Which of the following is not a protective measure for employees that are exposed to poisonous plants?

- a. Soap and water
- b. Natural immunity
- c. Protection ointments
- d. Instruction in identification
- e. Protective clothing

Reference: _____

31. A mechanical device shall be ready to retrieve personnel from vertical PRCs more than _____ deep.
- a. 1.5 meters, (4) feet
 - b. 1.7 meters, (5) feet
 - c. 1.8 meters, (6) feet
 - d. None of the above

Reference: _____

32. On an accident prevention sign labeled "DANGER", the word "DANGER" will appear as what color.
- a. Red
 - b. Orange
 - c. Yellow
 - d. Green
 - e. White

Reference: _____

33. _____ shall be the color for identifying dangerous conditions, and containers of flammable liquids.
- a. Red
 - b. Orange
 - c. Yellow
 - d. Green
 - e. Black and white

Reference: _____

34. The slow-moving vehicle emblem shall be used on vehicles or equipment which, by design, move at:
- a. 5 mph or less on public roads
 - b. 10 mph or less on public roads
 - c. 15 mph or less on public roads
 - d. 20 mph or less on public roads
 - e. 25 mph or less on public roads

Reference: _____

35. Accident prevention tags warning employees of defective tools, equipment, and lockout shall be:

- a. Made of metal or plastic
- b. Green in color
- c. Used only as a temporary means
- d. Conform to **Title** 10, Part 20, Code of Federal Regulations
- e. All of the above

Reference: _____

36. All sources of ignition shall be prohibited within _____ of operation with a potential fire hazard: the area shall be conspicuously and legibly posted NO SMOKING OR OPEN FLAME.

- a. 15 m (50 ft)
- b. 30 m (100 ft)
- c. 46 m (150 ft)
- d. 61 m (200 ft)
- e. All the above

Reference: _____

37. Smoking shall be prohibited in all areas where flammable, combustible, or oxidizing materials are stored. Signs will be posted and state which of the following?

- a. NO SMOKING
- b. NO OPEN FLAMES
- c. NO SMOKING OR OPEN FLAMES
- d. SMOKING PROHIBITED
- e. None of the above

Reference: _____

38. No flammable liquid with a (closed cup test) flash point below _____ shall be used for cleaning purposes or to start or rekindle fires,

- a. 23°C (73°F)
- b. 38°C (100°F)
- c. 49°C (120°F)
- d. 63°C (145°F)
- e. 100°C (212°F)

Reference: _____

39. Safety cans or other portable service containers of flammable liquids having a flash point at or below 23°C (73°F) shall:

- a. be painted red with a yellow band around the can
- b. be painted yellow with red diagonal stripes around the can
- c. have the name of the contents legibly indicated on the container
- d. a and c
- e. b and c

Reference: _____

40. Unopened containers of paint shall be stored in:

- a. tightly sealed storage locker or closet
- b. quantities of less than one weeks supply in buildings under construction
- c. a maximum distance of 10 feet or more from stairways
- d. a well-ventilated location, free of excessive heat, smoke, sparks, flame, or direct rays of the sun
- e. None of the above

Reference: _____

41. All tanks, hoses and containers of 19 L (5 gal) or less, while flammable liquids are being transferred, shall be:

- a. in metallic contact
- b. securely insulated
- c. bonded and grounded
- d. made of explosion-proof materials
- e. vented

Reference: _____

42. Areas in which flammable or combustible liquids are transferred, in quantities greater than 19 L (5 gal), from one container to another:

- a. shall be separated from other operations by 10 feet
- b. shall be separated from other operations by a fire wall with a fire resistance of four hours
- c. either a or b
- d. shall be provided with drainage to control spills
- e. shall be so ventilated as to maintain vapor concentrations below 50% of the lower explosive limit

Reference: _____

43. Heaters used near combustible tarpaulins, canvas, or similar coverings shall be located at least _____ from covering.

- a. 3 m (10 ft)
- b. 4.5 m (15 ft)
- c. 6 m (20 ft)
- d. 7.6 m (25 ft)
- e. None of the above

Reference: _____

44. Approved fire extinguishers shall:

- a. be approved by a nationally recognized testing laboratory and labeled to identify the listing and labeled organization
- b. be marked with their letter (class of fire) and numeric classification
- c. not use Carbon Tetrachloride or water extinguishing agents
- d. b and c
- e. a and b

Reference: _____

45. Clearance of at least _____ shall be maintained between the top of stored material and sprinkler deflectors.

- a. 46 cm (18 inches)
- b. 91 cm (36 inches)
- c. 122 cm (48 inches)
- d. 152 cm (60 inches)
- e. 183 cm (72 inches)

Reference: _____

46. In multiple-story facilities, at least one extinguisher shall be adjacent to:

- a. external exits
- b. electrical supply boxes
- c. stairways
- d. a and b
- e. None of the above

Reference: _____

47. Either general mechanical or local exhaust ventilation shall be provided whenever welding, cutting, or heating is performed in a

- a. open structure
- b. confined open ladder
- c. confined space
- d. None of the above

Reference: _____

48. Which of the following flexible cords/cables are designed for damp locations?

- a. Thermoset-jacketed heat resistant cord (AFS)
- b. Thermoset-jacketed heater cord (HS)
- c. Hard service cord (STOO)
- d. Junior hard service cord (SJE)
- e. All the above

Reference: _____

49. Splices are allowed in flexible cables when:

- a. Cable is hard service flexible cable No. 10 or larger with molded or vulcanized splices
- b. Cable is recommended for damp locations
- c. Cable height is 7 feet or more
- d. Both a and c
- e. Cable is hard service flexible cable No. 12 or larger with molded or vulcanized splices

Reference: _____

50. Attachment plugs and other connectors supplying equipment at more than _____ volts shall be skirted or otherwise designed so that arcs will be confined.

- a. 100
- b. 150
- c. 220
- d. 300
- e. 500

Reference: _____

51. Which of the following need not be grounded?

- a. Floodlights
- b. Double insulated tools
- c. Fuse boxes
- d. Semi-portable equipment
- e. None of the above

Reference: _____

52. Crane operations adjacent to overhead 50 kv lines are prohibited unless:

- a. power has been shut off and positive means taken to prevent the lines from being energized
- b. a 1.2 m (4 ft) clearance is maintained
- c. a 3 m (10 ft) clearance is maintained
- d. Either a or b
- e. Either a or c

Reference: _____

53. Which of the following statement/s is most correct concerning work activities which could affect or be affected by overhead lines:

- a. Greatest care shall be taken
- b. Rubber mats are optional
- c. The machinery or equipment will be grounded
- d. The job shall not be initiated until coordinated with the appropriate utility officials
- e. None of the above

Reference: _____

54. The minimum required clearance from power lines can be reduced on cranes equipped with:

- a. Cage boom guards
- b. Insulating links
- c. Proximity warning devices
- d. Either b or c
- e. None of the above

Reference: _____

55. Before climbing poles, ladders, scaffolds or other elevated structures:
- a. An inspection shall determine that the structures are capable of sustaining the additional or unbalanced stresses to which they will be subjected
 - b. The pole shall be made safe by guying, bracing, or other means
 - c. Action shall be taken as necessary to prevent failure of poles prior to removing or installing wire or cable
 - d. All of the above
 - e. Both a and b

Reference: _____

56. On underground electrical installations, maintenance holes and unvented vaults shall be treated as, and subjected to the requirements of _____
- a. confined space
 - b. unattended substation
 - c. energized substation
 - d. a and b

Reference: _____

57. Which of the following best describe the term "HIGH VOLTAGE"?
- a. 600 volts or greater
 - b. 500 volts or greater
 - c. 400 volts or greater
 - d. All the above
 - e. None of the above

Reference: _____

58. Which of the following statement/s is incorrect when tagout devices are being utilized?
- a. Tags must be legible and understood by all authorized and affected employees and incidental personnel.
 - b. Tags and their means of attachment must be made of materials which withstand the environment.
 - c. Tags essentially provide the same protection as locks.
 - d. Tags shall not be by-passed.
 - e. Both a and d.

Reference: _____

59. All abrasive wheels shall be closely inspected and ring-tested before mounting. Cracked or damaged grinding wheels shall be:

- a. properly dressed
- b. balanced by truing
- c. run not more than 2500 sfpm
- d. run not more than 5000 sfpm
- e. destroyed

Reference: _____

60. All portable, power-driven circular saws shall:

- a. **be** equipped with guards above and below the baseplate or shoe
- b. be double insulated
- c. have the operating speed etched or permanently marked in a prominent place
- d. be equipped with anti-kickback devices
- e. be equipped with sawdust collector

Reference: _____

61. Explosive actuated tools shall not be driven into:

- a. **soft** or easily penetrable materials unless they are backed by a material that will prevent the fastener from passing through the other side
- b. concrete, unless the material thickness is at least three times the penetration of the fastened shank
- c. **cast** iron
- d. All of the above
- e. Both a and b

Reference: _____

62. A chain saw must never be used to cut at a height:

- a. **above** the operator's waist
- b. below the operators knees
- c. above the operator's shoulders
- d. above the operator's shoulders, except when using both hands
- e. over the operator's head, except when using both hands

Reference: _____

63. Reusable lumber shall.
- a. be stacked a maximum of 10 feet high
 - b. be stacked to be stable and self-supporting
 - c. have all nails withdrawn before it is stacked for storage
 - d. All of the **above**
 - e. Both b and c

Reference: _____

64. Work areas shall be inspected _____ for adequate housekeeping and sufficient personnel/equipment provided to insure compliance. No work will be allowed in any areas that are not in compliance with good housekeeping.
- a. weekly
 - b. daily
 - c. twice weekly
 - d. Monthly

Reference: _____

65. Storage and construction sites shall be kept free from the accumulation of combustible materials, such as:
- a. weeds and grass shall be kept down
 - b. a regular procedure shall be established for cleanup of the area as specified by the designated authority
 - c. rubbish, brush, long grass, or other combustible material shall kept from areas where flammable and combustible liquids are stored, handled, or processed
 - d. All the above
 - e. None of the above

Reference: _____

66. Waste material and rubbish:
- a. can be dropped only 12 feet without using a chute
 - b. an be dropped only 8 feet without using a chute
 - c. shall be placed in containers
 - d. shall be placed in covered metal containers
 - e. Both b and d

Reference: _____

67. Separate covered, self closing, non-flammable/non-reactive containers shall be provided for the collection of:

- a. garbage
- b. dangerous wastes
- c. scrap lumber
- d. All of the above
- e. Both a and b

Reference: _____

68. Rigging equipment for material handling shall be inspected:

- a. prior to use on each shift
- b. at least once a week
- c. as necessary during its use
- d. a and c
- e. b and c

Reference: _____

69. In materials lifting, the hoist rope may be wrapped around the load:

- a. when setting or removing poles in electric construction
- b. when moved under or near energized lines
- c. when a **tagline** is used
- d. when it will not be moved over or suspended above personnel
- e. None of the above

Reference: _____

70. Wire rope clips attached with U-bolts shall:

- a. have the U-bolts on the dead or short end of the rope
- b. with the U-bolt of all clips on the live end of the rope
- c. always using three clips
- d. All of the above
- e. Both a and c

Reference: _____

71. Slings, their fittings, and fastenings, shall be inspected:

- a. prior to use on each shift
- b. daily
- c. weekly
- d. as necessary during its use
- e. Both a and d

Reference: _____

72. In determining the safe working loads of the various sizes and types of specific and identifiable hooks:

- a. the designated authority shall make the determination
- b. ANSI 87.1 shall be followed
- c. the manufacturer's recommendations shall be followed. If no recommendations are available, hooks shall be tested to twice intended safe working load before they are used
- d. a safety factor of not less than 10 shall be maintained
- e. Both b. and d.

Reference: _____

73. There shall be at least _____ full wrap(s) of rope on the drums of hoisting equipment at all times.

- a. 1
- b. 3
- c.
- d. 46
- e. 8

Reference: _____

74. Eyebolts shall only be loaded in the plain of the eye and shall not be loaded at angles of less than _____ to the horizontal.

- a. 15 degrees
- b. 20 degrees
- c. 30 degrees
- d. 45 degrees
- e. None of the above

Reference: _____

75. Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested:

- a. by the manufacturer's representative
- b. by a competent person
- c. by the designated authority
- d. by the operator
- e. as directed in ANSI B.30.5.

Reference: _____

76. Machinery having defects that will impair their strength or render them unsafe shall be:

- a. repaired immediately
- b. repaired by the maintenance shop
- c. removed from service
- d. Both a and b
- e. None of the above

Reference: _____

77. Machinery and mechanized equipment shall be inspected daily (when in use). Equipment deficiencies observed at any time that affect their safe operation shall be:

- a. reported on the designated form
- b. reported on the next daily inspection
- c. reported to the mechanic
- d. immediately taken out of service until unsafe conditions have been corrected
- e. None of the above

Reference: _____

78. Every crane shall have available a load rating chart for that crane. It shall include which of the following?

- a. Crane make and model, serial number and year of manufacturer
- b. Load rating for all crane configurations, including optional equipment
- c. Operating limits in windy or cold weather conditions
- d. Recommended reeving for the hoist line
- e. All the above

Reference: _____

79. The minimum qualifications for operators of hoisting equipment shall be:

- a. passing a practical operating examination
- b. adequate hearing
- c. no evidence of emotional instability
- d. All of the above
- e. Both a and b

Reference: _____

80. Riding on loads, hooks, hammers, buckets, or material hoists is prohibited except when:

- a. necessary to balance a load
- b. necessary to secure a load
- c. necessary for a worker to be able to unhook a load
- d. Either a or c
- e. None of the above

Reference: _____

81. The following shall be provided within a mobile crane operator's view:

- a. A boom angle or radius indicator
- b. A rotation indicator
- c. Proximity warning devices
- d. All of the above
- e. Both b and c

Reference: _____

82. Obstructions or projections into accessways which are pointed, sharp, or which may cause lacerations, contusions, or abrasions shall be:

- a. Removed or conspicuously marked
- b. Posted with warning signs and painted yellow
- c. Covered with protective material
- d. Removed, or the accessway or passageway shall be barricaded off
- e. Barricaded

Reference: _____

83. Toeboards shall be made of _____ lumber or equivalent.

- a. 2.5 cm x 10 cm (1 inch x 4 inch)
- b. 2.5 cm x 7.6 cm (1 inch x 3 inch)
- c.
- d. 5.1 cm x 7.6 cm (2 inch x 3 inch)
- e. None of the above

Reference: _____

84. Hand rails shall be of construction similar to a standard guardrail, but the vertical height shall be no more than _____ nor less than _____ from the upper surface of the hand rail to surface of tread, in line with face of riser or to surface of ramp.

- a. 75 cm (30 inches); **60 cm** (24 inches)
- b. 85 cm(**34** inches); 75 cm (30 inches)
- d. 95 cm(**38** inches); **85 cm** (**34** inches)
cm(**42** inches); (**38** inches)
- e. 122 cm(**48** inches); 106 cm (42 inches)

Reference: _____

85. Portable ladders used as temporary access shall extend past the landing:

- a. 0.45 m (18 inches)
- b. **0.6 m** (**2** feet)
- c. 0.9 m (3 feet)
- d. 1.2 m (**4** feet)
- e. One-fourth the length of the ladder

Reference: _____

86. Portable ladders shall be used at such a pitch that the horizontal distance from the top support to the foot of the ladder will not be greater than _____ the vertical distance between these points.

- a. one-fourth
- b. ~~one-fifth~~
- c. one-sixth
- d. oneseventh
- e. None of the above

Reference: _____

87. Broken or damaged ladders shall:
- a. Have temporary repairs made to them by the worker until such that they can be taken out of service.
 - b. Be reported and repaired as soon as possible.
 - c. Be immediately repaired.
 - d. Be removed from service immediately and destroyed.
 - e. Be immediately tagged "DO NOT USE", and withdrawn from service until restored to a condition meeting the original design.

Reference: _____

88. Ladders shall be used as work platforms only when:

- a. Using small hand tools
- b. Lifting heavy materials
- c. In conjunction with ladder jacks
- d. All of the above
- e. Both b and c

Reference: _____

89. Belting off to an adjacent pole structure or equipment while working from an aerial lift is:

- a. Optional
- b. Recommended
- c. Required
- d. Shall not be permitted
- e. Prohibited except when the worker is sitting on the edge of the basket

Reference: _____

90. When persons will be in or around an excavation, the excavation, the adjacent areas, and protective systems shall be inspected:

- a. daily and as needed throughout the work shift
- b. quarterly
- c. monthly
- d. weekly
- e. None of the above

Reference: _____

91. Excavations less than _____ in depth and which a competent person examines and determines there to be no potential for cave-in do not require protective systems.

- a.
- b. 0.9 1.5 m (3 ft)
- c. (5 ft)
- d. 2.1 m (7 ft)
3m (10ft)
- e. 4.5 m (15 ft)

Reference: _____

92. Excavated material shall be stored and retained from the edge of the excavation at least:

- a. 0.15 m (6 in)
- b. 0.3 m (1 ft)
- c. 0.6 m (2 ft)
- d. 1.22 m (4 ft)
- e. The distance required by the designated authority

Reference: _____

93. Where personnel are required to enter excavations over 1.2 m (4 ft) in depth, sufficient stairs, ladders, or ramps shall be provided to require lateral travel of no more than:

- a. 3 m (10 ft)
- b. 4.6 m (15 ft)
- c. 7.6 m (25 ft)
- d. 15.2 m (50 ft)
- e. 30 m (100 ft)

Reference: _____

94. Where personnel are working in an excavation over 30 m (100 ft) wide:

- a. a safe means of exit shall be provided
- b. at least two means of exit shall be provided
- c. a means of exit shall be provided at each side
- d. at least two means of exit shall be provided at each side
- e. a means of exit shall be provided at least every 25 feet

Reference: _____

95. The removal of trench supports from trench excavations should progress:

- a. from the bottom of the trench
- b. from the top of the trench
- c. together with the **backfilling**
- d. as directed by the designated authority
- e. Both a and c

Reference: _____

96. Electrical accidents and falls are the two biggest causes of accidents in tree work. Employees working in the proximity of electrical equipment or conductors shall never _____ the energized or potentially energized equipment.

- a. use metal ladders near
- b. use non-insulated tools on
- c. touch (directly or indirectly)
- d. tie off to

Reference: _____

97. During tree maintenance and removal operations climbing ropes shall not be used to _____

- a. to raise equipment
- b. to lower equipment
- c. to lower limbs or other parts of trees
- d. all of the above

Reference: _____

98. Pole pruners, pole saws, and similar tools shall be equipped with wood or nonmetallic poles; actuating cords shall be of _____

- a. nonconducting material
- b. aluminum
- c. stainless steel
- d. none of the **above**

Reference: _____

99. Which of the following shall be visually inspected before each days use for external defects, and for indication of possible internal damage?

- a. Cord sets
- b. Attachment caps
- c. Plugs and receptacles of cord sets
- d. All the **above**
- e. None of the above

Reference: _____

100. The steps or rungs of permanent ladders shall be set to provide at least _____ toe space from the center line of the rungs, cleats, to the nearest permanent object in back of the ladder

- a. 1 inch
- b. 3 inches
- c. 7 inches
- d. 10 inches
- e. 12 inches

Reference: _____